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From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

## PCT

To:

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AUG 12 2003

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

04.08.2003

Applicant's or agent's file reference  
2001B126B

### IMPORTANT NOTIFICATION

International application No.  
PCT/US02/31046

International filing date (day/month/year)  
30.09.2002

Priority date (day/month/year)  
16.10.2001

Applicant

EXXONMOBIL CHEMICAL PATENTS INC. et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

ACKNOWLEDGED  
PAA Group  
AUG 11 2003

Name and mailing address of the international  
preliminary examining authority:



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☒ FYI  
☒ Reminder  
☐ File



**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)



REC'D 06 AUG 2003

WIPO PCT

Applicant's or agent's file reference 2001B126B	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA416)	
International application No. PCT/US02/31046	International filing date (day/month/year) 30.09.2002	Priority date (day/month/year) 16.10.2001
International Patent Classification (IPC) or both national classification and IPC C07C7/04		
Applicant EXXONMOBIL CHEMICAL PATENTS INC. et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  17.04.2003	Date of completion of this report  04.08.2003
Name and mailing address of the International preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Van Geyt, J  Telephone No. +31 70 340-2542  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US02/31046

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, Pages

1-30 as originally filed

### Claims, Numbers

1-53 as originally filed

### Drawings, Sheets

1/6-6/6 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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EXAMINATION REPORT**

International application No. **PCT/US02/31046**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
- (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:
- ☐ the entire international application,
  - ☒ claims Nos. 2-9,17,20,21,34-38,46-49,53
- because:
- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
  - ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
  - ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
  - ☒ no international search report has been established for the said claims Nos. 2-9,17,20,21,34-38,46-49,53
2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:
- ☐ the written form has not been furnished or does not comply with the Standard.
  - ☐ the computer readable form has not been furnished or does not comply with the Standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1,10-16,18,19,22-33,39-45,50-52
	No: Claims	
Inventive step (IS)	Yes: Claims	1,10-16,18,19,22-33,39-45,50-52
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1,10-16,18,19,22-33,39-45,50-52
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The search has been restricted to claims 1, 10 to 16, 18, 19, 22 to 33, 39 to 45 and 50 to 52. The examination is restricted accordingly.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: US 4474647

D2: US 5336841

D3: US 5609734

**Novelty**

Document D1 deals with a process for the purification of C<sub>4</sub>-C<sub>5</sub> olefins containing dimethyl ether by distillation.

Document D2 deals with a process for removing dimethyl ether from C<sub>4</sub>-hydrocarbons by reactive distillation.

Document D3 deals with a process for the separation of oxygenates from hydrocarbon mixtures by distillation.

None of these documents deal with a process for the separation of dimethyl ether from an olefin stream prepared from oxygenates by contacting them with a molecular sieve, drying the stream and separating it by distillation in a stream comprising dimethyl ether and propane, and a stream comprising propylene.

The subject-matter of claims 1, 10 to 16, 18, 19, 22 to 33, 39 to 45 and 50 to 52 is therefore novel in the meaning of Art. 33(2) PCT.

**Inventive step**

The problem solved by this application is to provide a process for removing dimethyl ether from olefins obtained from oxygenates.

This problem has been solved by a process comprising drying the stream and separating it by distillation in a stream comprising dimethyl ether and propane, and a stream comprising propylene.

The use of such a process is not suggested nor pointed at in the above

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documents.

The subject-matter of claims 1, 10 to 16, 18, 19, 22 to 33, 39 to 45 and 50 to 52 is therefore inventive in the meaning of Art. 33(3) PCT.

**Industrial applicability**

The process as claimed in claims 1, 10 to 16, 18, 19, 22 to 33, 39 to 45 and 50 to 52 has industrial applicability as required in Art 33(4) PCT.